

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BERND BRUCHMANN, HANS RENZ,
RAINER KONIGER, ULRIKE EHE,
ULRICH TREULING, and RUDOLF MULLER-MALL

Appeal 2006-3071
Application 09/811,987
Technology Center 1700

Decided: September 28, 2006

Before WARREN, KRATZ, and JEFFREY T. SMITH, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the decision of the Examiner finally rejecting claims 1, 2, and 4 through 13. Claim 3, also of record, has been held by the Examiner to encompass patentably subjected matter but is objected to as being dependent on a rejected claim.

Claim 1 illustrates Appellants' invention of a process for preparing high functionality polyisocyanates having at least three free isocyanate groups, and is representative of the claims on appeal:¹

1. A process for preparing high functionality polyisocyanates having at least three free isocyanate groups, which comprises

(i) preparation of an addition product (A) which contains only one group which is reactive toward isocyanate and at least two free isocyanate groups by reacting

(a) a diisocyanate or polyisocyanate I with

(b1) compounds having at least three groups which are reactive toward isocyanate or

(b2) compounds containing two groups which are reactive toward isocyanate or mixtures of (b1) and (b2),

where at least one of the components (a) or (b) has functional groups having different reactivities toward the functional groups of the other component and the reaction ratio is selected so that the addition product (A) contains an average of only one group which is reactive toward isocyanate, and at least two free isocyanate groups.

(ii) optionally, intermolecular addition reaction of the addition product (A) to form a polyaddition product (P) containing an average of only one group which is reactive toward isocyanate and an average of more than two free isocyanate groups, and

(iii) reaction of the isocyanate reactive group of said addition product (A) and/or the polyaddition product (P) with a diisocyanate or polyisocyanate II to form a high functionality polyisocyanate having at least three free isocyanate groups and no free isocyanate reactive groups.

The reference relied on by the Examiner is:

Bauriedel

US 4,623,709

Nov. 18, 1986

¹ We have copied claim 1 as it stands of record and appears in the Claim Appendix to the Brief, including the period (".") at the end of the first clause.

The Examiner has rejected appealed claims 1, 2, and 4 through 13 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Bauriedel (Answer 3-6).

Appellants argue the claims as a group with respect to the ground of rejection under each statutory provision (Br. 10 and 13). Thus, we decide this appeal based on appealed claim 1. 37 C.F.R. § 41.37(c)(1)(vii) (2005).

We affirm the ground of rejection under § 103(a) and reverse the ground of rejection under § 102(b). Accordingly, the decision of the Examiner is affirmed.

We refer to the Answer and to the Brief for a complete exposition of the positions advanced by the Examiner and Appellants.

OPINION

The issues in this appeal involve the teachings and inferences that one of ordinary skill in this art would have found in Bauriedel with respect to the preparation of the “first stage prepolymer” in the process of preparing polyisocyanates therein, and thus, whether the reference anticipates or would have rendered obvious the claimed process encompassed by appealed claim 1 which specifies “addition product (A)” as the first stage in a process of preparing the same kind of compounds. We determine that Claim 1 requires reacting, among others, a diisocyanate with a compound having at least three groups which react with an isocyanate group to form “addition product (A) [that] contains an average of only one group which is reactive toward isocyanate, and at least two free isocyanate groups.”

The Examiner submits that the disclosure in the abstract and at cols. 2-5, particularly col. 3, l. 45, and col. 5, l. 4, would have taught

reacting a diisocyanate with a polyhydric alcohol having three or more hydroxyl groups in “preferred ratios of initial hydroxyl groups to initial isocyanate groups” so as to arrive at prepolymers molecules each having a single hydroxyl functionality and at least two free isocyanate groups as specified for addition product (A) in claim 1 (Answer 3-4).

With respect to the ground of rejection under § 102(b), Appellants submit that the process described by Bauriedel requires a diisocyanate which must be reacted with a “(b1) compound” having at least three isocyanate reactive groups in order to arrive at addition product (A) as claimed (Br. 10-11). Appellants point out that the Bauriedel Examples involve reacting a diisocyanate with a dihydric alcohol which would not produce claimed addition product (A). Appellants contend that Bauriedel would not have taught a first prepolymer corresponding to addition product (A), contending that at col. 2, ll. 12-19,

it is stated that the first stage of the process is a reaction between a diisocyanate having isocyanates of different reactivities [sic] and a polyhydric alcohol at a OH:NCO ratio of 0.55-4:1 “until virtually all of the faster-reacting of the two isocyanate moieties have been reacted with OH moieties, forming a first stage prepolymer having a substantial number of free OH moieties attached through the alcohol nucleus.” [Br. 11, original emphasis deleted.]

In this respect, Appellants also point to the disclosure in Bauriedel at col. 3, ll. 38-46, col. 2, ll. 60-64, col. 4, l. 68, to col. 5, l. 4, col. 2, ll. 60-64, col. 4, l. 68, to col. 5, l. 4, arguing that “[i]t is hard to rationalize why this similar language should be treated by the Examiner as alternatively referring to the product versus to the reaction mass or product composition” (Br. 11-12).

Thus, Appellants submit that the method of Bauriedel results either in a first stage prepolymer having an isocyanate group and a hydroxyl group or has multiple hydroxyl groups, neither of which describes addition product (A) specified in claim 1 (*id.* 12).

With respect to the ground of rejection under § 103(a), Appellants submit that Bauriedel “teaches away” from the claimed process, pointing out that the Bauriedel Examples and the same disclosure in Bauriedel argued previously do not result in addition product (A) (*id.* 12-16).

The Examiner responds that Bauriedel discloses processes “where only a single hydroxyl group remains” in the first stage prepolymer, pointing to the disclosure of “an unreacted hydroxyl moiety” in Bauriedel at col. 3, l. 45, maintaining that the reference as argued by Appellants “refers not to individual product molecules but to the . . . reaction mass” (Answer 4-5).

We agree with Appellants that the Bauriedel Examples prepare a first stage prepolymer from a diisocyanate and a dihydric alcohol which would not result in a product satisfying the limitations of addition product (A) specified in appealed claim 1. We further fail to find in Bauriedel a disclosure which would provide direction to the claimed process encompassed by claim 1 in a manner reasonably constituting a description thereof within the meaning of 35 U.S.C. § 102(b). Thus, we reverse the ground of rejection under this statutory provision. *See generally, In re Spada*, 911 F.2d 705, 707 n.3, 15 USPQ2d 1655, 1657 n.3. (Fed. Cir. 1990).

However, we agree with the Examiner that one of ordinary skill in this art would have reasonably found in Bauriedel the teachings leading to

the preparation of a first stage prepolymer by reacting diisocyanates with trihydric alcohols and higher alcohols within the "OH:NCO ratio of 0.55-4.1 until virtually all of the faster-reacting of the two isocyanate moieties have been reacted with OH moieties" (col. 2, ll. 12-19). Indeed, as pointed out by the Examiner and contrary to Appellants' position, we find that this person would have reasonably read the disclosure at col. 2, l. 1, to col. 5, l. 4, to pertain to individual first stage prepolymer molecules with an available hydroxyl group and at least two unreacted isocyanate groups as specified for addition product (A) in claim 1.

In this respect, we find that Bauriedel would have taught one of ordinary skill in the art to obtain the first stage prepolymer by reacting tolylene-2,4-diisocyanate or isophorone diisocyanate with, among others, glycerol, trimethylol ethane or trimethylol propane which are trihydric alcohols (col. 3, l. 54, to col. 4, l. 19). The combination of the two reactants provide an OH:NCO ratio of .75:1 which falls within the ratio range disclosed by Bauriedel (Bauriedel col. 2, ll. 12-19, and col. 4, l. 63, to col. 5, l. 4), and provides first stage prepolymer molecules which has an average of one hydroxyl group reactive with isocyanate groups and at least two free isocyanate groups as taught by the reference. Indeed, on this record, it reasonably appears that Appellants achieve the same result. This is because the specific diisocyanates and trihydric alcohols disclosed in Bauriedel are encompassed by appealed claims 4 and 5 and by appealed claim 9, respectively, and the reaction taught by the reference is set forth in the written description in Appellants' specification (specification 6:37-45).

Thus, based on the substantial evidence in Bauriedel, we find that it reasonably appears that the process of the reference is identical or substantially identical to the claimed process encompassed by appealed claim 1. Accordingly, the burden falls upon appellants to establish by effective argument or objective evidence that the claimed process patentably distinguishes over the process disclosed by Bauriedel, even though the rejection is based on § 103(a). *See, e.g., In re Best*, 562 F.2d 1252, 1255-56, 195 USPQ 430, 433-34 (CCPA 1977)(“Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. *See In re Ludtke*, [441 F.2d 660, 169 USPQ 563 (CCPA 1971)]. Whether the rejection is based on ‘inherency’ under 35 USC 102, on ‘prima facie obviousness’ under 35 USC 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO’s inability to manufacture products or to obtain and compare prior art products. [Footnote and citation omitted.]”)

We are not convinced by Appellants’ arguments that Bauriedel would have taught away from the claimed invention in view of the common recitation of reactants and of the first stage prepolymers or addition product (A). *See generally, In re Kahn*, 441 F.3d 977, 985-89, 78 USPQ2d 1329, 1334-38 (Fed. Cir. 2006) (“A reference may be said to teach away when a person of ordinary skill, upon reading the reference would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” (quoting

In re Gurley, 27 F.3d 551, 553 [31 USPQ2d 1130, 1131] (Fed. Cir. 1994));
In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1145-46 (Fed. Cir.
2004) (prior art “disclosure does not criticize, discredit, or otherwise
discourage the solution claimed”).

Accordingly, based on our consideration of the totality of the record
before us, we have weighed the evidence of obviousness found in Bauriedel
with Appellants’ countervailing evidence of and argument for
nonobviousness and conclude that the claimed invention encompassed by
appealed claims 1, 2, and 4 through 13 would have been obvious as a matter
of law under 35 U.S.C. § 103(a).

The Examiner’s decision is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2005).

AFFIRMED

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